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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/733,474	12/08/2000	Minoru Sugawara	09792909-4740	2651

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EXAMINER

NGUYEN, JOSEPH H

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 02/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/733,474

Applicant(s)

SUGAWARA ET AL.

Examiner

Joseph Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I, drawn to claims 1-2 in Paper No. 3 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Therefore, Group I, drawn to claims 1-2 is prosecuted while Group II, drawn to claim 3 is withdrawn from consideration.

Specification

The abstract of the disclosure is objected to because it contains more than 150 words. The abstract should contain no more than 150 words in a single paragraph. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kubo et al.

Regarding claim 1, Kubo et al discloses on figures 1 a semiconductor device comprising an n channel field effect transistor and a p channel field effect transistor, said both transistors being provided on a common base substrate 10, wherein a surface region in which said n channel field effect transistor is provided, of said base substrate comprises: a silicon substrate 10, said buffer layer 14n formed on said silicon substrate; a buffer layer being made from a silicon germanium compound having a germanium concentration gradually increased toward an upper surface of said buffer layer; a relax layer 15n formed on said buffer layer, said relax layer being made from a silicon germanium compound having a germanium concentration nearly equal to that of a surface portion of said buffer layer; a silicon layer 17n formed on said relax layer and wherein a surface region on which said p channel field effect transistor is provided, of said base substrate 10, comprises said silicon substrate 10; a silicon germanium compound layer 15p formed on said silicon substrate 10; and a cap layer 17p formed on said silicon germanium compound layer 15p, said cap layer 17p being made from silicon.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1- 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al in view of Chu et al.

Regarding claim 1, Imai et al discloses on figures 3J and 3K a semiconductor device comprising an n channel field effect transistor and a p channel field effect transistor, said both transistors being provided on a common base substrate, wherein a surface region in which said n channel field effect transistor is provided, of said base substrate comprises: a silicon substrate 11, said buffer layer 12 formed on said silicon substrate; a buffer layer being made from a silicon germanium compound having a germanium concentration gradually increased toward an upper surface of said buffer layer (col. 7, lines 60-63); a relax layer 15 formed on said buffer layer, said relax layer being made from a silicon germanium compound (col. 8, line 27) having a germanium concentration nearly equal to that of a surface portion of said buffer layer; a silicon layer 16 formed on said relax layer and wherein a surface region on which said p channel field effect transistor is provided, of said base substrate 11, comprises said silicon substrate 11; a silicon germanium compound layer 2 formed on said silicon substrate.

Imai et al does not disclose a cap layer formed on the silicon germanium compound layer, said cap layer being made from silicon. However, Chu et al discloses on figure 5 a cap layer 19 formed on the silicon germanium compound layer 18, said cap layer being made from silicon. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Imai et al by having a cap layer formed on the silicon germanium compound layer, said cap layer

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being made from silicon for the purpose of obtaining the high quality of the channel in terms of carrier mobility as taught by Chu et al (col. 4, lines 1-5).

Regarding claim 2, Imai et al discloses on figure 3K source/drain regions 22a, 22b of n channel field effect transistor are formed in said silicon layer 16, and source/drain regions 24a, 24b of said p channel field effect transistor are formed in said silicon germanium compound layer 2.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

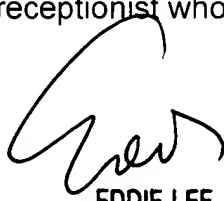
US Patent 5951757 to Dubbelday et al disclose a method for fabricating silicon germanium alloy on a sapphire substrate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (703) 308-1269. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 308-7382 for regular communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JN
February 13, 2002


EDDIE LEE
SUPERVISORY PATENT EXAMINER
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